Graveline Bay Intertidal and Subtidal Reefs Mississippi Department of Marine Resources Decision Factors and Environmental Assessment

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Jackson County, Mississippi

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Appendix:

1.0 MISSISSIPPI COASTAL PROGRAM DECISION FACTORS

The following section provides responses to the decision factors used in determining if the project adheres to the Mississippi Coastal Program document Chapter 8, Section 2, Part I.E. "Basis for Decisions", prepared by Bureau of Marine Resources, Department of Wildlife Conservation in 1980 and revised in 1988. Section 2 of this Attachment, Environmental Assessment, discusses the environmental impacts of the project in greater detail.

Chapter 8, Section 2, Part I.E.2.a: ***Applicable legislative and judicial statements of public interest.***

This project will serve a higher public purpose by restoring natural resources (secondary benthic productivity) injured by the Spill. Accordingly, the project is in compliance with the public policy of the state to favor the preservation of the natural state of coastal wetlands and their ecosystems and to prevent the despoliation and destruction of them, except where a specific alteration of a specific coastal wetland would serve a higher public interest.

Chapter 8, Section 2, Part I.E.2.b: ***…Permits shall be granted only for projects allowed by the "Coastal Wetland Use Plan".***

The waters in the vicinity of the project are classified as District P1 (Preservation Marsh and Waterbottoms). Since the project is a restoration project, it is consistent with the P-1 use.

Chapter 8, Section 2, Part I.E.2.c: …***The applicable guidelines must be followed unless the applicant specifically requests and justifies a variance…***

A Variance to the Mississippi Coastal Program is necessary for the Big Island Living Shoreline Project. Chapter 8, Section 2, Part.III. N.O.1 of the Mississippi Coastal Program states "Permanent filling of coastal wetlands because of potential adverse and cumulative environmental impacts is discouraged." A Variance to the Miss. Admin. Code Title 22 Part 23 Rules and Regulations for the Coastal Wetlands Protection Law and the Mississippi Coastal Program is necessary for the Big Island Living Shoreline Project because Chapter 8 Section 114.01 states "Permanent filling of coastal wetlands below the mean high tide line because of potential adverse and cumulative environmental impacts is not authorized". The variance requests are included as Attachment D to the Joint Application and Notification.

Justification for the variance is provided in Chapter 8, Section 2, Part I.E.2.c.i of the Mississippi Coastal Program and in Miss. Admin. Code Title 22, Part 23, Chapter 8, Section 118.01: The impacts on coastal wetlands would be no worse than if the guidelines were followed.

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Chapter 8, Section 2, Part I.E.2.d: ***Precedent setting effects and existing or potential cumulative impacts of similar or other development in the project area;***

Precedent Setting Effects

The project will not have any adverse precedent setting effects. It is designed to increase secondary productivity by the placement of reef habitat. Secondary productivity restoration projects have been successfully implemented in Mississippi.

Cumulative Impacts

Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 C.F.R. §1508.7). Cumulative impacts were discussed in detail in the Phase IV Early Restoration Plan ("Phase IV Plan"). The Trustees' Record of Decision and the final Phase IV Plan are available publicly (http://www.gulfspillrestoration.noaa.gov/restoration-planning/phase-iv).

The following resources would not have long-term impacts and therefore, would not have cumulative impacts.

- Air quality and greenhouse gas emissions
- Noise
- Socioeconomics and environmental justice;
- Infrastructure
- Tourism and recreation

The affected resources analyzed in the cumulative impacts analysis are:

- Geology and Substrates
- Hydrology and Water Quality (including wetlands)
- Living Coastal and Marine Resources (including habitats and protected species)
- Land and Marine Management

The cumulative impacts analysis concluded that when analyzed in combination with other past, present, and reasonably foreseeable future actions, the proposed project would not contribute substantially to cumulative adverse impacts to the affected resources. Furthermore, when carried out in conjunction with other environmental stewardship and restoration efforts, the project has the potential to result in long-term beneficial cumulative impacts in the Gulf Coast region because of the potential for synergistic effects of the project with these other environmental stewardship and restoration activities.

Chapter 8, Section 2, Part I.E.2.e: The extent to which the proposed activity would directly and indirectly affect the biological integrity and productivity of coastal wetlands communities and ecosystems;

The project will directly benefit the biological integrity of coastal wetlands by restoring lost secondary benthic productivity, which, in turn, favors the preservation of coastal wetlands.

Chapter 8, Section 2, Part I.E.2.f: The full extent of the project, including impacts induced by the project, both intended and unintended but reasonably anticipated;

The Environmental Assessment (Section 2.0 of this document), details the affected environment and the intended and unintended, but reasonably anticipated project impacts. Project impacts were previously analyzed in the Phase IV Plan. The Trustees' Record of Decision and the final Phase IV Plan are available

publicly (http://www.gulfspillrestoration.noaa.gov/restoration-planning/phase-iv).

Chapter 8, Section 2, Part I.E.2.g: The extent of any adverse impact that can be avoided through project modifications, safeguards, or other conditions, (e.g. piers in lieu of channel dredging);

Throughout the design process, every practical attempt would be made to avoid and minimize potentially adverse environmental, social, and cultural impacts. A construction alternatives analysis has been conducted and is included in the Joint Application and Notification Form Supplement which is part of this application document.

Coordination and reviews under the Historic Preservation Act, Endangered Species Act, the Migratory Bird Treaty Act, the Magnuson-Stevens Fishery Conservation and Management Act, the Marine Mammal Protection Act, and the Bald and Golden Eagle Protection Act have been completed. Coordination under Section 106 of the National Historic Preservation Act is ongoing. A Cultural Resource Feasibility Study has been completed and is summarized in a memorandum dated July 1, 2016; the Feasibility Study includes literature search and recommendations for a Section 106 Consultation framework. Tribal consultation is underway. MDAH has approved the proposal for cultural resource investigation prior to project implementation and coordination with MDAH will continue.

Chapter 8, Section 2, Part I.E.2.h: The extent of alternative sites available to reduce unavoidable project impacts;

A detailed site alternatives analysis is included in the Joint Application and Notification Form Supplement which is part of this application document.

Chapter 8, Section 2, Part I.E.2.i: The extent to which a proposed activity requires a waterfront location;

The proposed project involves the construction of a reef, requiring a water location.

Chapter 8, Section 2, Part I.E.2.j: The preservation of natural scenic qualities, as specified in Section 6;

Design of the project has been coordinated with Mississippi Department of Marine Resources staff through the Restoration Coordination Team to ensure the preservation of natural scenic qualities.

Chapter 8, Section 2, Part I.E.2.k: The national interest, as specified in Section 7;

The national interest to be served by the proposed project is the need to improve recreational opportunities (Chapter 8, Section 7, Guidelines for the consideration of the National Interest). The subtidal reef is designed with undulating patterns of vertical relief with spaces in between ridges that are likely to be used as cover and forage habitat for crustaceans, fish, and other aquatic species, and therefore is expected to provide ancillary benefits by improving recreational fishing opportunities.

2.0 GRAVELINE BAY ENVIRONMENTAL ASSESSMENT

2.1 Introduction and Background

Following the *Deepwater Horizon* Spill (the Spill), the Mississippi Trustee (Mississippi Department of Environmental Quality) engaged stakeholders including coastal municipal and county governments, non-governmental organizations, state and regional agencies, and the public through a variety of public outreach and coordination efforts to discuss NRDA, the restoration planning process, and potential restoration projects related to the Spill. In addition, the Trustees met with stakeholders to provide information and solicit suggestions.

On May 6, 2015, the Federal and State natural resource trustees issued a Notice of Availability and Request for Comments on the Draft Phase IV Early Restoration Plan and Environmental Assessments (RP/EA). The Draft Phase IV RP/EA proposed ten early restoration projects that were consistent with the early restoration program alternatives selected in the Final Phase III Early Restoration Plan/Programmatic Environmental Impact Statement, and were consistent with the goal of compensating the public for natural resource injuries resulting from the Spill. One of the ten projects was proposed and selected in the Final Phase IV RP/EA (September 2015) was Restoring Living Shorelines and Reefs in Mississippi Estuaries Project, which includes Graveline Bay Intertidal and Subtidal Reefs project component.

Six public meetings were held in June 2015 across the Gulf Coast, including a June 4, 2015 meeting in Long Beach, Mississippi, and public comments were received through July 6, 2015. The Trustees received approximately 2,600 submissions from private citizens; businesses; federal, state and local agencies, non-governmental agencies, and others.

2.2 Purpose and Need

The purpose and need for this action falls within the scope of the purpose and need for the programmatic portions of the Final Phase III ERP/PEIS because it would accelerate meaningful restoration of injured natural resources and their services resulting from the Spill. The project would restore lost benthic secondary productivity in Mississippi resulting from the Deepwater Horizon Oil Spill (Spill) in an effort to make the environment whole by restoring, rehabilitating, replacing, or acquiring comparable natural resources injured by the Spill. The project would provide for construction of 10 acres of subtidal reef habitat and 2 acres of intertidal reef habitat that would support benthic secondary productivity, including, but not limited to, bivalve mollusks, annelid worms, shrimp, and crabs.

Post-construction performance monitoring is proposed for five years following completion of the project and will evaluate the project's performance over time with respect to the production and support of organisms on the reef.

Components of this monitoring may include collecting information with respect to:

- Invertebrate biomass
- Subtidal reef elevation and area
- Intertidal reef area

This project will incorporate a mix of long-term monitoring efforts to ensure project designs are correctly implemented during construction, and to identify any potential unanticipated erosion/sediment accumulation issues associated with the project; corrective actions and maintenance that would be performed as necessary.

2. 3 Affected Environment and Environmental Consequences

In order to determine whether an action has the potential to result in significant impacts, the **context and intensity** of the action must be considered. **Context** refers to area of impacts (local, state-wide, etc.) and their duration (e.g., whether they are short- or long-term impacts). **Intensity** refers to the severity of impact and could include the timing of the action (e.g., more intense impacts would occur during critical periods like high visitation or wildlife breeding/rearing, etc.). Intensity is also described in terms of whether the impact would be beneficial or adverse.

2.3.1 No action

Both OPA and NEPA require consideration of the No Action alternative. For this proposed project, the No Action alternative assumes that MDEQ would not pursue the Graveline Bay Intertidal and Subtidal Reefs as part of Phase IV Early Restoration.

Under the No Action alternative, the existing conditions described for the project site in the affected resources subsection would prevail. Restoration benefits associated with this project would not be achieved at this time.

2.3.2 Proposed Action

Resource areas not analyzed in project-specific detail along with a brief rationale for non-inclusion are listed and discussed below:

Air Quality and Greenhouse Gas Emissions: Harrison County is classified as in attainment, meaning criteria air pollutants do not exceed National Ambient Air Quality Standards (NAAQS). The project would have no long-term impacts on air quality or to emissions of greenhouse gases. In addition the following best management practices would be implemented for the Graveline Bay Intertidal and Subtidal Reefs project:

- Shut down idling construction equipment, if feasible.
- Locate staging areas as close to construction sites as practicable to minimize driving distances between staging areas and construction sites.
- Encourage the use of the proper size of equipment for the job to maximize energy efficiency.
- Encourage the use of alternative fuels or power sources for generators at construction sites, such as propane or solar power, or use electrical power where practicable.

Noise: Noise impacts would be restricted to a brief construction window and would be short-term minor impacts with little or no long-term impact to ambient noise conditions. In addition, the construction activities are primarily in-water work and would not be directly adjacent to residential and commercial development.

Infrastructure: There would be limited storage and movement of land-based material storing and therefore limited, short-term impacts to infrastructure, if any. The project would provide long-term beneficial impacts to infrastructure due to shoreline protection. In addition, any impacts to infrastructure in the project area (pipelines, navigation channels) would be avoided or minimized in the planning, engineering and construction of the project.

Tourism and Recreation: Construction would result in short-term adverse impacts to recreational activities, primarily fishing and boating.

The following sections describe the affected resources (physical environment, biological environment, human uses and socioeconomics, cultural resources, land and marine management, and public health and safety and shoreline protection), and the environmental consequences of the project. Mitigation measures and best management practices described in the final Phase IV Plan (http://www.gulfspillrestoration.noaa.gov/restoration-planning/phase-iv) as well as those included in the NOAA PRD and HCD and USFWS Section 7 consultations (Appendix A below) will be adhered to during project implementation.

2.3.2.1 Physical Environment

The following is a summary of impacts to the physical environment from implementation of the Graveline Bay Intertidal and Subtidal Reefs:

- Geology and substrates: Minor long-term adverse impacts would occur due to the reef construction due to replacement of soft substrate with hard substrate.
- Hydrology, tides and currents: Creation of subtidal and intertidal reef habitat would provide long-term beneficial effects by reducing wave energy of storm surges.
- Water Quality: Placement of the subtidal and intertidal reef would result in short-term, minor localized adverse impacts to water quality as a result of increased turbidity and potential leaks or spills of fuel and lubricants used by vessels and other equipment during construction. However, long-term benefits would occur due to enhanced water clarity caused by bi-valve filtering of the water column, and decrease of suspended sediment in the water column due to reduction of wave energy reaching the shoreline.
- Floodplains: The subtidal reef will be located below mean lower low water (MLLW) and would not impact the floodplain in the project area. Impacts on the floodplain due to intertidal reef would be negligible.
- Wetlands: Section 404 wetlands are not present in the project area; Section 10 waters are present.

2.3.2.2 Biological Environment

The following conservation measures and BMPs (sorted by resource type) will be implemented to minimize impacts to biological resources:

Submerged Aquatic Vegetation

- To the extent practicable, SAVs will be avoided in the siting and construction of reef habitat.

Invasive Species

- Prior to bringing any equipment (including personal gear, machinery, vehicles or vessels) to the work site, each item shall be inspected for mud or soil, seeds, vegetation, insects and other species. If present, the equipment, vehicles or personal gear shall be cleaned until they are free from mud, soils, seeds and vegetation. This inspection shall occur each time equipment, vehicles, and personal gear are being prepared to go to a site or prior to transferring between sites to avoid spreading exotic, nuisance species.
- Reef habitat material will be treated or inspected to remove "non-target" species.

Benthic Infauna and Epifauna

- SAV surveys will be conducted as part of project site refinement in the summer (June 1-September 30) prior to construction and the results will be submitted to the Mississippi Commission on Marine Resources and to the USACE prior to construction.
- For intertidal and subtidal reef habitat effort will be made during design and construction to avoid existing environmentally sensitive areas such as viable productive oyster reefs, emergent marsh and SAVs, and other living communities.

Marine Mammals

- Standard Manatee Conditions (A-D) for In-Water work (USFWS 2011)
- Smalltooth Sawfish and Sea Turtle construction guidelines (NMFS 2006)
- Measures for Reducing Entrapment Risk to Protected Species (NMFS 2012)

Protected Species

<u>ESA consultations and MMPA coordination</u>

- ESA Section 7 coordination with NOAA NMFS and USFWS is complete (Appendix A). NOAA NMFS Effect Determination for all five species of sea turtles and Gulf sturgeon is "Not Likely to Adversely Affect". USFWS determined No Effect to Alabama red-bellied turtle because this species is mainly a freshwater species so it is not known from and not expected to occur within the vicinity of the proposed project. USFWS determined Not Likely to Adversely Affect (Piping plover, Red knot, and West Indian manatee) because appropriate avoidance and minimization measures have been included within the project description to ensure that any effects to listed species are insignificant or discountable, and to ensure that Piping Plover PCEs and/or critical habitat will not be adversely modified or destroyed.

<u>Sea turtle mitigation measures</u>

- Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006).
- All project work will be in-water, during daylight hours and no nesting habitat exists in the project area.
- All construction related vessels or barges will maintain slow transit speeds (5 knots or less) to and from (and within) the construction site.
- All construction personnel will be notified of the potential presence of sea turtles in the water and will be reminded of the need to avoid sea turtles.

- If any sea turtle is seen within a 50-foot radius of the equipment, operation of any mechanical construction equipment will cease immediately and will not resume until the protected species has departed the project area of its own volition.
- All construction personnel will be notified of the criminal and civil penalties associated with harassing, injuring, or killing sea turtles.
- Train/instruct all construction personnel of what they are to do in the presence of a sea turtle.
- Construction activities will occur during daylight hours and noise will be kept to the minimum feasible.

Gulf sturgeon mitigation measures

- Sea Turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006).
- If any Gulf sturgeon is seen within a 50-foot radius of the equipment, operation of any mechanical construction equipment will cease immediately and will not resume until the protected species has departed the project area of its own volition.

Shorebirds mitigation measures

- All construction personnel will be notified of the potential presence of shorebirds within the project area.
- All construction personnel will be instructed and trained in the protection of shorebirds.
- Construction personnel will be notified of the criminal and civil penalties associated with harassing, injuring or killing shorebirds.
- If piping plovers or red knots are present, work will not occur until the birds have moved from the area by 150 feet.
- Construction noise will be kept to the minimum feasible.

West Indian manatee mitigation measures

- Standard Manatee Conditions (A-D) for In-Water Work (USFWS 2011) as modified for Mississippi.
- All construction personnel will be notified of the potential presence of West Indian Manatee in the water and reminded of the criminal and civil penalties associated with harassing, injuring, or killing West Indian manatees.
- All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). Should a West Indian Manatee come within 50 foot of the project area during construction activities, work will immediately cease until the West Indian Manatee has moved away from the project area on its own, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation.
- All vessels associated with the construction project shall operate at “Idle Speed/No Wake” (5 knots or less) at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water wherever possible.
- Care will be taken when lowering equipment into the water and the sediment in order to ensure that no harm is caused to West Indian Manatee that may potentially be in the water within the construction area.

- Site selection will avoid seagrasses to the maximum extent practicable such that potential feeding areas will not be removed.
- Construction noise will be kept to the minimum feasible.

General Avoidance, Conservation Measures and BMPS

- Material used for construction cannot contain trash, debris, and/or toxic pollutants.
- SAVS and living oysters will be avoided to the extent practicable.
- The project will comply with Measures for Reducing Entrapment Risk to Protected Species, revised May 22, 2012

Migratory Bird Treaty Act/Bald and Golden Eagle Protection Act

- USFWS determined that take would be avoided under Bald and Golden Eagle Act Protection and Migratory Bird Treaty Act (Appendix A).
- If evidence of eagle nesting is found, within 660 ft. of the project area, coordination with the USFWS will be initiated to develop and implement appropriate conservation measures. Due to the implementation of best management practices no "take" is anticipated.
- If evidence of migratory bird nesting is found, coordination with the USFWS will be initiated to develop and implement appropriate conservation measures.
- Construction noise will be kept to the minimum feasible.

Essential Fish Habitat

- EFH consultation is completed (Appendix A) and SER HCD has determined that the proposed work would enhance the fishery productivity of the project area and would have no substantial impacts to EFH.
- All construction activities will be completed during daylight hours.
- Monitoring will assess whether unexpected impacts to EFH have occurred.
- If immediate post-construction monitoring reveals that unavoidable impacts to EFH have occurred, appropriate coordination with regional EFH personnel will take place to determine appropriate response measures, possibly including mitigation.

The following is a summary of impacts to the biological environment from implementation of the Graveline Bay Intertidal and Subtidal Reefs:

- SAV: No long-term adverse effects to SAV are expected. A seagrass survey was performed during the 2016 hydrographic survey along the tidal shelf of Graveline Bay. No submerged aquatic vegetation (SAV) were identified in the area. Prior surveys and data have not shown SAV in Graveline Bay (Moncrieff 1998 and 2007, Pham 2014). An SAV will be performed before final contract documents are issued. All SAV beds identified will be avoided during construction.

- Invasive Species: No long-term adverse effects from invasive species are expected. Any adverse impacts from invasive species are expected to be short-term and minor. The following conservation measures and best management practices would result in the avoidance and minimization of the introduction and spread of invasive species:

- All equipment to be used during the project, including personal gear, would be inspected and cleaned such that there is no observable presence of mud, seeds, vegetation, insects and other species.
- Reef habitat material would be treated or inspected to remove "non-target" species.

- Benthic Infauna and Epifauna: Potential short-term minor impacts to benthic organisms may occur from increased turbidity, substrate disturbance, or siltation during construction. Following construction, there is expected to be increased habitat utilization and long-term benefit due to the placement of hardened structure. This represents a substantial long-term benefit for these organisms.
- Marine Mammals: Short-term minor adverse effects due to noise and turbidity associated with placement of structures could temporarily disturb marine mammal species if they are in the vicinity of the project area. Based on the mobility of these species, the short duration of construction activities, the proposed construction methodology, and implementation of the following conservation measures and best management practices, effects on marine mammals are not anticipated:
  - Standard Manatee Conditions (A-D) for In-Water work (USFWS 2011)
  - Smalltooth Sawfish and Sea Turtle Construction Guidelines (NMFS 2006)
  - Measures for Reducing Entrapment Risk to Protected Species (NMFS 2012)
- Protected Species: The Trustee has completed coordination with the USFWS and NOAA-NMFS to determine affects to protected species. A summary of impacts to protected species and critical habitats is provided below:

Species /Critical Habitat	Potential Impacts to Species/Critical Habitat
Five (5) Sea Turtles Species	NOAA NMFS has concurred that the proposed activities may affect, but are not likely to affect, 5 sea turtle species. Sea turtles are a mobile marine species and project activities would not impede transitory routes. There is no nesting habitat in the project area. There is no designated or proposed critical habitat for sea turtles within the action area. If individuals are seen within a 5-ft radius of the equipment, operation will cease immediately and will not resume until the protected species has departed the project area of its own volition
West Indian manatee *(Trichechus manatus)*	USFWS has determined that the proposed activities may affect, but are not likely to affect, West Indian manatee. Appropriate avoidance and minimization measures have been included within the project description to ensure that any effects to West Indian manatee are insignificant or discountable. Manatees are not likely to occur in the project area. Short-term minor impacts could occur if manatees come into contact with construction activities. Manatees are a mobile marine species and project activities would not impede transitory routes. If individuals are seen within 50 feet of construction areas, construction would be halted until the individual leaves the area of its own volition.
Gulf sturgeon *(Acipenser oxyrhynchus desotoi)* Species and Designated Critical Habitat	NOAA NMFS has concurred that the proposed action if not likely to adversely affect Gulf sturgeon and will not destroy or adversely modify Gulf Surgeon critical habitat. To the extent practicable, project construction would be limited to the window between May and October, after sturgeon have migrated to their riverine habitat. If work continues beyond the May to October window, continued adherence to the Sea turtle and Smalltooth Sawfish Construction Conditions (NMFS 2006) would minimize the potential for impacting Gulf Sturgeon. No project components are

Species /Critical Habitat	Potential Impacts to Species/Critical Habitat
	located within riverine ecosystems. If individuals are seen within 50 feet of construction areas, construction would be halted until the individual leaves the area of its own volition. If individuals enter construction areas, short-term, minor impacts could be the result. PCEs for Gulf Sturgeon would not be adversely modified by the proposed project.

- Migratory Birds/Bald and Golden Eagles:
    - Due to the implementation of best management practices no "take" is anticipated for bald eagles. Golden eagles are not present in the area.
    - Potential adverse effects to birds include elevated noise levels due to the presence of construction equipment. These species are mobile and would likely exit the area during construction (no impacts to overall population). Therefore, impacts are expected to be short-term, localized, and minor.
- EFH:
    - It is anticipated that finfish would move away to other readily available aquatic habitats during the construction period. Fish present in the area of the project component could be subject to a temporary increase in sound pressure levels, a temporary decrease in water quality, entrainment in dredge sediments, and removal of benthos from areas. Sound pressure level increases or entrainment could result in mortality of individual finfish. Overall, this would be a minor short-term adverse effect that would not be expected to reduce local fish populations or designated EFH.
    - There would be minor, long-term, adverse impacts to EFH for species that rely on soft bottom habitat as a result of the project.
    - There would be short term, minor, impacts to EFH for species that utilize both soft and hard bottom habitat.
    - There would be a long-term benefit to EFH by creation of reef habitat.

2.3.2.3 Human Uses and Socioeconomics

The following is a summary of impacts to the human uses and socioeconomics from implementation of the Graveline Bay Intertidal and Subtidal Reefs:

- Cultural Resources: A complete review of this project under Section 106 of the NHPA would be completed as permitting continues. This project would be implemented in accordance with all applicable laws and regulations concerning the protection of cultural and historic resources.
- Land and Marine Management: Implementation of the project would be consistent with planned land and marine management and would not disrupt existing or planned land uses. There could be short-term minor impacts due to deployment of subtidal reefs. There would be long term ecological benefits that would be consistent with planned land and marine management.
- Aesthetics and Visual Resources: During construction, there would be short-term, minor adverse aesthetic and visual impacts for recreational boaters and fishermen due to construction equipment in and around the project area. Residents, people who use the bays for recreation, and businesses along the shoreline would experience minor adverse aesthetic and visual

impacts during construction. The deployed materials would not adversely affect aesthetic and visual resources.

- Public Health and Safety and Shoreline Protection: There could be minor short-term impacts resulting from the operation of heavy equipment or from the incidental releases of surface water contaminates from barge and boats.

3.0 REFERENCES

DOI (Department of the Interior), 2015. *Deepwater Horizon Soil Spill: Final Phase IV Early Restoration Plan and Environmental Assessments.* September 2015.

National Marine Fisheries Service (NMFS). 2006. Sea Turtle and Smalltooth Sawfish Construction Conditions. Southeast Regional Office. St. Petersburg, Florida. Revised March 23.